THE DER UPDATE

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Distributed Energy Resources...the Power of Choice

Industry News

Capstone Gets Cheesy

Enmaco Motorer, a Danish company part of the Geveke Power Systems group, together with the local gas company Naturgas Fyn, has successfully installed the first Capstone 60 unit in Denmark. The unit will operate in a cogeneration application at a cheese factory.

The picture shows the outdoor installation on the roof of the factory. The exhaust gases from the microturbine are utilized by a heat exchanger that produces hot water.
Capstone Press Release, May 24

DG Global Market Analysis

Global distributed generation capacity will increase from 20 GW to near 300 GW by 2011 according to "Distributed Generation -- Global Market Analysis, Technology Assessment and Outlook", a new study by Allied Business Intelligence.

One of the key findings in the study is that reciprocating engines and small gas turbines will keep their dominance through 2005-2006. By 2005, fuel cells will be penetrating commercial markets across the globe starting in North America, Europe, and Japan. The study also shows power quality and industrial power supply markets to see higher growth rates than residential markets. Industrial markets already have started to embrace DG power systems, and they will continue to do so in the foreseeable future. Small to medium sized industrial markets are expected to have the largest growth potential.

The study analyzes a broad range of DG emerging technologies, from fuel cells to microturbines, to wind turbines. Market segment analysis ranges from industrial to commercial and residential applications. Market forecasts are provided for key regions / countries through to 2011. Critical summaries are also provided for current regulatory practices, tax practices, environmental regulations, and business considerations affecting the present and future uptake of DG technologies.
Business Wire, May 21

DOE NEWS

SCC Workshop on DER

The Alexandria Research Institute and the Virginia State Corporation Commission jointly sponsored a workshop on Distributed Energy Resources in Richmond on May 17, 2002, to discuss DER policy options for Virginia. Judge Hullihen Williams Moore, one of the three Commissioners on the State Corporation Commission (SCC), stressed in his welcoming remarks the importance of DER as a component of competitive electricity markets and customer choice. Judge Moore noted that Virginia's net metering law, enacted in July 2000, is being used as a model by other states. Joe Galdo, from the Office of Energy Efficiency and Renewable Energy, provided a national perspective on DER focusing on interconnection and national efforts to address those issues. Tommy Oliver of the SCC staff provided an overview of a proposal to establish DER interconnection rules in Virginia, which is based in large part on the Texas DER interconnection rule and on related portions of Virginia's net metering law. Other speakers discussed utility perspectives and environmental considerations.

IR Microturbine Delivered to Test Site

The Ingersoll-Rand PowerWorks 70 kW turbine to be used for the Federal Energy Management Program's (FEMP) Federal Facility Manager DER Training at the Distributed Energy Technologies Laboratory (DETL), Sandia National Laboratories (SNL), Albuquerque, was delivered in the beginning of April. The microturbine is part of an integrated CHP system and provides an excellent training platform for both power and heat applications.

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According to a California Energy Commission (CEC) report, if demand response programs were in place during 2000, the state could have saved between $35 and $2000 per MW during peak periods.

Communication and Control Workshop

More than 50 experts from energy-related industries, Federal and State government agencies, universities, and National Laboratories participated in the "Communication and Control for Distributed Energy Implementation and Testing Workshop," which was held in Reston, Virginia, on May 14 and 15, 2002.

The workshop was a follow-up to a Technology Roadmap Workshop on Communication and Control Systems for Distributed Energy resources in September 2001 in Keystone, Colorado. Several technical challenge areas relating to communications and control (C&C) were identified at the Keystone Workshop. The workshop focused on the two highest priority areas: (1) demonstration and testing of C&C technologies for integrating DER with grid operation and (2) system architectures required for communications and controls to be intra-operable within DER and inter-operable with utility communication and control systems. The workshop format had four breakout groups--two working in parallel on demonstration and testing and two working in parallel on system architecture.

The workshop opened with a plenary session of remarks and presentations from government officials, industry, and National Laboratory representatives that set the tone for breakout group discussions. The participants then dispersed into their breakout groups to complete a series of four focus questions related to their respective tracks.

In the demonstration and testing track one of the proposed paths forward was to prepare a roadmap document that justifies the need for a large scale demonstration. The roadmap would establish a baseline by documenting existing projects in the U.S. and around the world. It would also establish the economic, social, regulatory, and technical rationale and set demonstration goals and objectives. The systems architecture track came up with several paths forward for implementation of concept designs of proposed information technology. An example from one of the groups is a concept design that would develop a reference architecture document and create a forum of interested parties to develop and accept proposals.

There are many unanswered questions and uncertainties about DER given that the power system is in the midst of transformation and the roles of many of the stakeholders – e.g., regulators, services providers, manufacturers, and utilities – are in the process of being re-defined. Depending upon how it is implemented, the distributed energy paradigm could be vastly different from the existing power system. As a result, there are basic questions about safety, security, reliability, cost, and customer acceptance. While many of the needed technologies exist, the technical know-how to get them to operate efficiently does not. The implementation of C&C systems can help answer some of the basic questions and develop technical knowledge.

The full set of notes from the meeting will be available May 31 and a proceedings document by June 14—please contact Brian Marchionini at bmarch@energeticsinc.com to receive a copy.

The report, A Proposed Action Plan to Develop More Demand Response in California, also estimates that increasing the demand response capacity to 5,000 MW could cave between $420 million and $2.9 billion a year.

FEMP is offering this training to all federal facility managers across the country to create a greater understanding of DG technologies and their operational details. Several sessions will be offered at the Sandia site for groups of 10 to 12 participants through 1 ½ day training sessions. The training curriculum spans a broad range of topics including acquisition, installation and operation of distributed energy resources such as microturbines. Coordination and possible interactions of various on-site power sources will also be discussed. The curriculum includes both class instruction and hands-on operation time with the microturbine and other DG systems.

The first session is tentatively scheduled for early June 2002. The DETL training site also has other microturbines such as the Capstone 30 kW units that offer added value by allowing participants to gain exposure to the operational characteristics of another popular brand of microturbines. Technologies presently operating at DETL that will be available for the training include a grid-interactive diesel generator, grid-interactive photovoltaic inverters with and without energy storage, and off-grid hybrid (PV/engine-generator/storage) inverters.

Sandia has acquired the PowerWorks microturbine through a lease agreement with Ingersoll-Rand. The team negotiating the acquisition and installation of the microturbine included Jerry Ginn, Tom Byrd and Mark Ralph of SNL and Ed Henderson and Chris Tomandi, of Ingersoll-Rand's Power Division. The Ingersoll-Rand microturbine is originally designed for indoor operation only. It was placed in the outdoor enclosure on the opposite column to accommodate SNL's training needs. The two Capstone microturbines are in the foreground.

State News

MI to Further NextEnergy Initiative

Michigan state legislators, in cooperation with the Michigan Economic Development Corporation, have introduced several bills that would further the NextEnergy initiative, a economic development plan for research, development and commercialization of alternative energy technologies. The legislation authorizes various tax incentives for purchasing stationary and vehicular alternative energy devices, including personal property tax exemptions for companies whose primary service or product is alternative energy technology research, development, or manufacturing.
Source: www.nextenergy.org/020510NextEnergy.htm

Materials Tech Brief

Last week during the meeting of ASTM C28 committee on Advanced Ceramics, Edgar Lara-Curzio was presented with the "Advanced Ceramics Award" in "... recognition of outstanding service and active participation in the development of standards for advanced ceramics."

Since 1999 Edgar has been serving as chairman of ASTM sub-committee C28.07 on Ceramic Matrix Composites, and as leader of working groups 20 and 21 of Technical Committee 206 of the International Standards Organization. The work in ISO technical committee TC206 will result in two new international standards for ceramic matrix composites later this year. He is also serving as liaison between ASTM C28.07 and technical committee 184 of the European Committee for Standardization, and as co-chairperson of the Coordination Group on Test Methods for Ceramic Matrix Composites for the Military Handbook-17.

For the last sever years, Edgar's ASTM and other standardization activities have been sponsored by the Continuous Fiber-Reinforced Ceramic Matrix Composites Program within the Office of Energy Efficiency and Renewable Energy.

The per-meter cost for medium and large customers is between $1.00 and $3.50 per month for a five-year contract.

Calendar of Events

JUNE 2002			
2-5	Energy 2002 Workshop and Expo: Hot Challenges, Cool Solutions	Palm Springs, CA	(703) 243-8343, www.energy2002.ee.doe.gov
2-5	Wind Power 2002	Portland, OR	www.awea.org
4-7	IEEE P1547 Working Group Meeting	Vail, CO	www.ieee.org
6-7	West Coast Energy Management Congress	Anaheim, CA	(703) 243-8343, www.aeecenter.org
16-18	National Accounts Conference and Exhibition (American Gas Association)	Nashville, TN	TheGasChoice.com
23-25	IDEA 93rd Annual Conference & Expo	Baltimore, MD	www.districtenergy.org
25-26	DER FEMP Workshop	Chicago, IL	www.eren.doe.gov/femp/techassist/der_resources.html
26-29	Building Energy 2002 and the Mid-Atlantic Sustainability Conference	East Brunswick, NJ	www.nesea.org
27-28	The Business Case for Cogeneration Regulatory Initiatives	Chicago, IL	www.cbinet.com
JULY 2002			
11-12	Powering E-Business Part 3: Exploring Energy, Deregulation, and the Digital Society	San Francisco, CA	www.epri-peac.com/ebusiness3/index.html
21-25	IEEE Power Engineering Society Summer Meeting 2002	Chicago, IL	Www.ieee-spm2002.org
AUGUST 2002			
18-23	Summer Study on Energy Efficiency in Buildings	Pacific Grove, CA	www.aceee.org
SEPTEMBER 2002			
19-20	Energizing America's Cities	Chicago, IL	www.gastechnology.org/pub/aboutgri/2000ar/eac/eacindx7.htm
30-Oct. 2	7th National Green Power Marketing Conference	Washington, DC	www.eren.doe.gov/greenpower/conference

The CEC estimated that the cost of meters for customers between 50 kW and 200 kW would be about $15 million over a 10-year period, but would be offset by annual energy savings of at least $48 million.